Hemostasis poly vinyl alcohol gauze coated with chitosan encapsulated with polymer and drug

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Chitosan is the most important derivative of chitin, the second most abundant biopolymer just after cellulose, which has received great attention because of its unique characteristics. Without doubt, its biomedical usages have gained more importance among the vast variety of chitosan applications owing to its good biocompatibility and biodegradability. In recent years, particular interest has been devoted to chitosan hydrogels as a promising alternative in competition with conventional sutures or bioadhesives. In the current work, we have investigated the effectiveness of chitosan hydrogel to stop bleeding. Chitosan was obtained with solubilization of chitosan powder in aqueous acidic media.

Different parameters such as acid type and concentration, and degree of deacetylation (DD%) of chitosan, were altered to modify hydrogel properties including viscosity, pH, cohesive strength, and tissue bioadhesiveness. In vivo experiments have been conducted on rat models which provide a convenient way to evaluate the efficacy of prepared samples.

The arteries vein was punctured on the hind limb of the rat and the gauze was been applied on the punched area. Bioadhesive strength as well as irritant effects were discussed.

Samples with higher degree of deacetylation, including Chs-16 and Chs-19 that were dissolved in lactic media showed best sealing effect. Further studies are now conducted to optimize the sealing properties of chitosan on Poly vinyl alcohol based gauze.

Biography
Abhishek Kumar Ramasamy was born in Banglore, Karnataka, India, and pursued Bachelor's degree in fashion technology at Kumaraguru College of Technology, Coimbatore, Tamilnadu, India in the year 2007. He did his internship in India, which was based on using natural dye for colouring garments at TIFAC-CORE Indian government fabric testing lab and Levis stratus. He gained knowledge in special fibres, specialty garments, medicinal textiles and technical textile in the course duration of his degree program. He completed his final year project cum internship in LEVIS STRATUS marketing and pattern making department. His project was about "CURE ID " denim a product of Levis, study was about the pattern of the denim product and market reach. During his college days, he has attended many conference on medical textile, this made him to work more inquisitive on hemostatic gauze. In the year 2011, he graduated as a fashion designer but made himself to be an independent scientist and worked on HEMOSTASIS GAUZE. This gave him a drive to meet good doctors and pharmacists and gather information on drugs. In 2011 he started to work on gauze physically and finally ended up with final product in 2012 October. He was associated with various labs like TIFAC-CORE for gauze development, Ultra dental college Pharmaceutical department lab for drug development and Madurai medical college animal husbandry for animal trial. In 2013 February, he worked on a drug delivery molecule for melanoma by topical treatment. Presently he is working with Dr. Somasundream, a Surgical Oncologist in Moscow, Russia.

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